

# LOAD RUNNER

THE GALAXY'S FIRST COMPUTER COMIC

WHILST ON A ROUTINE JOB FOR LONDON REPAIRMEN, MICRO MECHANIC MIKE ROMAN IS AMBUSHED BY A ROGUE ROBOT INSIDE A MYSTERIOUS WAREHOUSE. AS HE LOSES CONSCIOUSNESS, HE RECOGNIZES THE WAREHOUSE AS THE INSIDE OF AN ENORMOUS COMPUTER...

PULSE, RESPIRATION AND BRAIN ACTIVITY NORMAL. ALL BODY FUNCTIONS ARE NOW OPERATIONAL.

MIKE ROMAN DATA ERASED COMPLETELY. MEMORY READY TO RECEIVE NEW DATA.

INPUT NEW DATA. LOAD PROGRAM.

LOADING COMPLETED. PROGRAM NOW RUNNING. BRAIN ACTIVITY INCREASING.

CONSCIOUSNESS RETURNS...

LOAD? ... RUN? WHERE AM I? ... WHO AM I?

WIN A COMPUTER CAMP HOLIDAY

ANDY'S SECRET IS REVEALED

BLAKE'S SEVEN AND DRAG



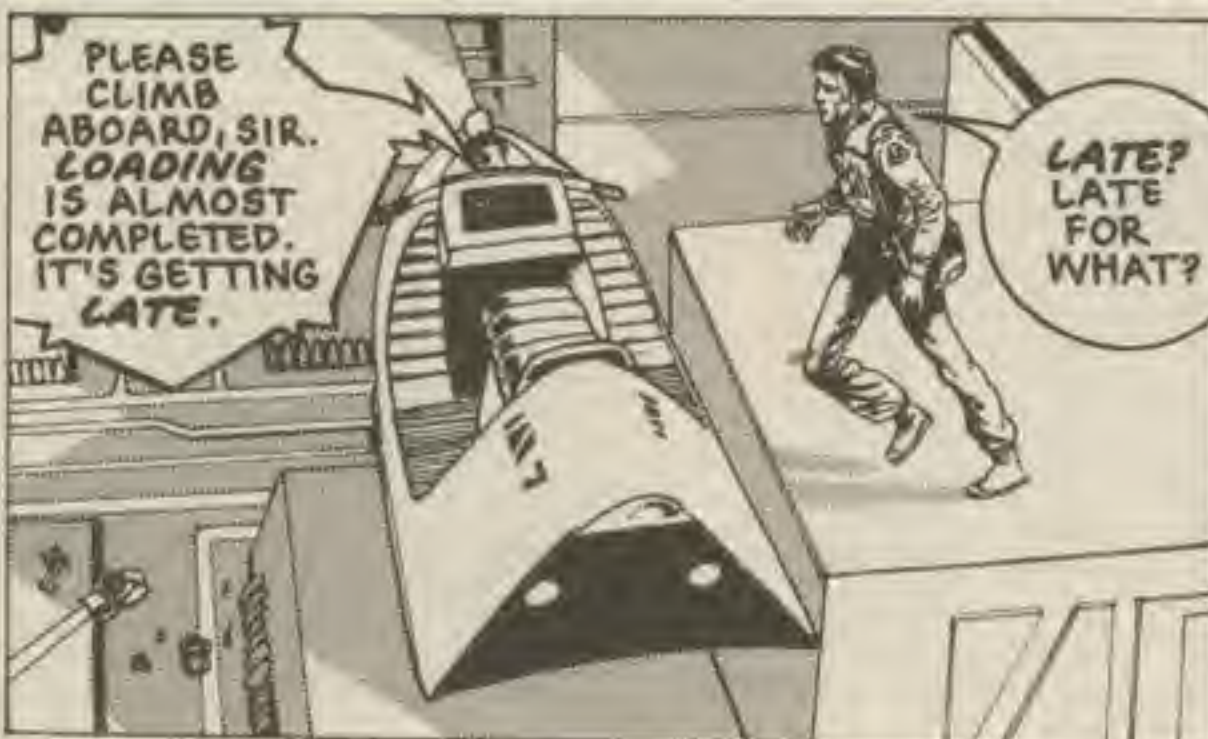




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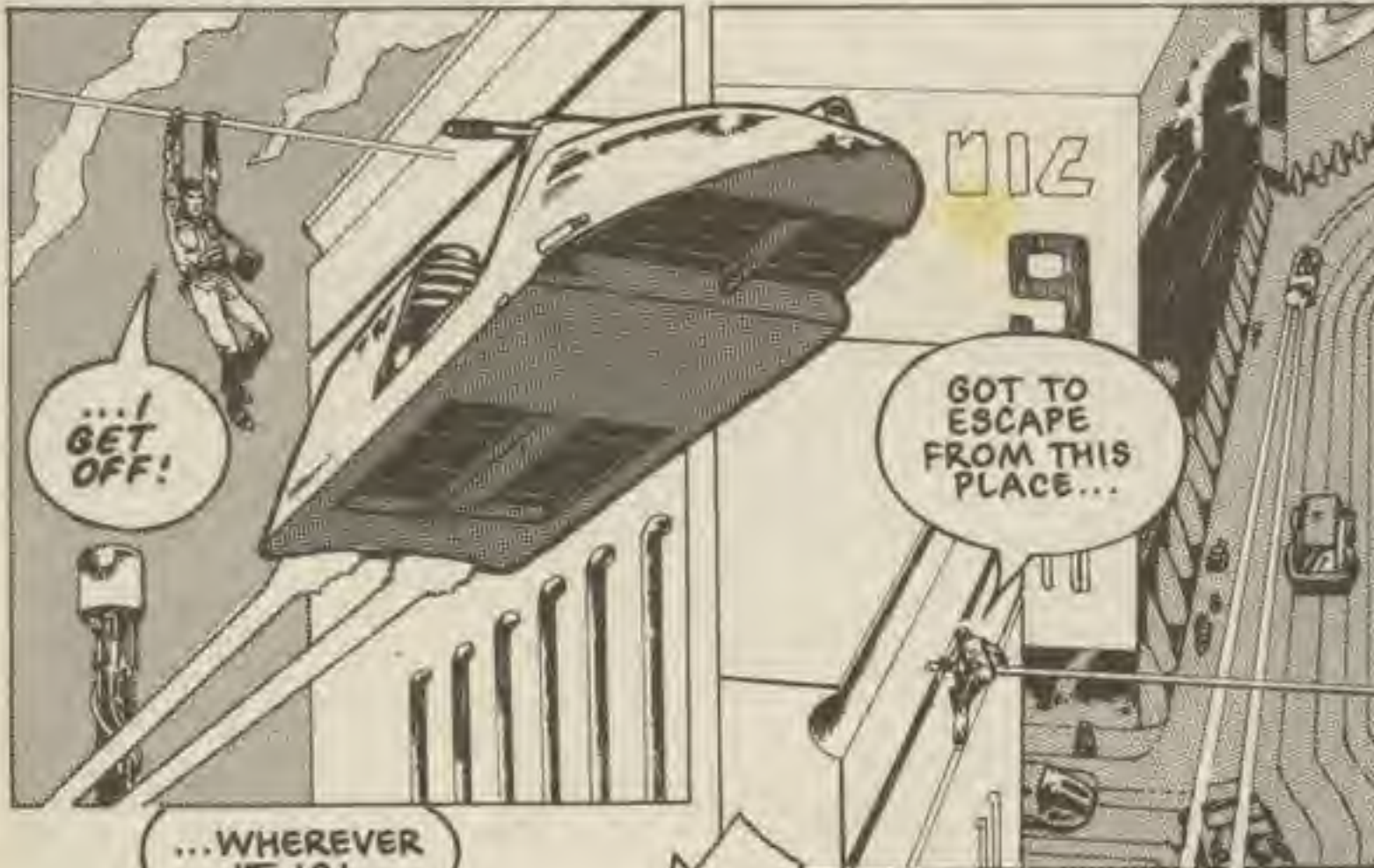


OF COURSE, YOU MIGHT NOT SURVIVE. YOU MIGHT EVEN BE EXPENDABLE!

GODDAM IT! I DON'T UNDERSTAND! STOP!

AS THE CRAFT SLOWS DOWN TO CORNER...

WELL, YOU'LL CERTAINLY KNOW SOON ENOUGH. NO POINT IN WORRYING NOW. THE PROGRAM HAS LOADED, AND IS READY TO RUN...



...I GET OFF!

GOT TO ESCAPE FROM THIS PLACE...

...WHEREVER IT IS!



AND SO AM I! THIS IS WHERE...



STOP! DON'T RUN!



YOU! I KNOW YOU! TELL ME, WHO AM I?

YES SIR, I KNOW YOU. YOU ARE...

...THE LOAD RUNNER! AND YOU'RE LATE FOR THE GAME!

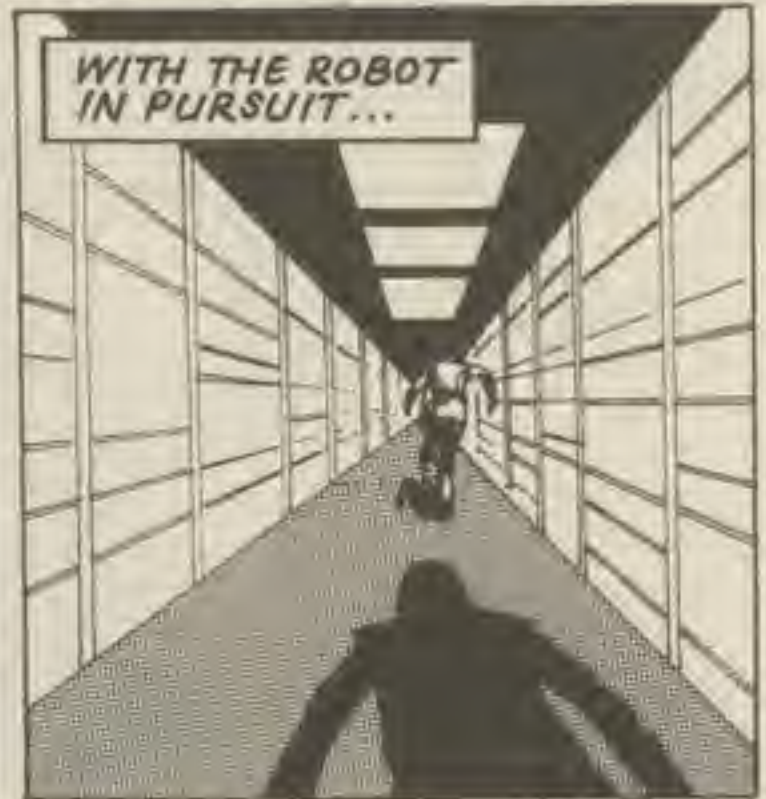


HE ACTS SWIFTLY...

I DON'T PLAY GAMES!



WITH THE ROBOT IN PURSUIT...





# LOAD RUNNER





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SKI JUMP  
HANGMAN  
OLD BONES  
THIN ICE

MAZE LAYER  
ORBITER  
MOTORWAY  
FORCE FIELD  
NIM  
TUNNEL ESCAPE  
BARREL JUMP  
CANNONBALL BATTLE  
OVERTAKE  
SITTING TARGET  
SMASH THE WINDOWS  
SPACE SHIP  
JET FLIGHT  
PHASER  
INTRUDER  
INFERNO  
GHOSTS

SUBMARINES  
ROCKET LAUNCH  
PLANETS  
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DO YOUR GUNS  
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**Sinclair Projects** is published every two months as a glossy, instruction-packed magazine that gives you all the encouragement you need to exercise your talent and take a serious look at what your Sinclair can do for you.

Each issue can contain as many as FIVE step-by-step projects — yet it's yours for JUST 95p. So if you want a break from playing games, make sure you order YOUR **Sinclair Projects** from your newsagent today — or fill in the form below and we will send it direct to you, six times per year.

Mail to: ECC Publications Limited, 30-31 Islington Green, London N1 8BJ Yes — I'd like to subscribe to  
Sinclair Projects (6 issues — price £9.90 including P&P) I enclose a cheque for £  
Please charge my credit card: Card name \_\_\_\_\_ Number \_\_\_\_\_  
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*WHAT EXCELLENT judgment you have demonstrated by buying the second print-out of the Galaxy's first computer comic. Reports flooding-in to my operators suggest that thousands of you enjoyed our first offering. We hope this remains the case.*

*Don't forget there is an extra special bonus to all of you who buy the first four issues. You will qualify for FREE membership of the Load Runner Decoders and receive your own Security Pass.*

*There will be many advantages in joining the Decoders and I will go into detail in future issues. For the time being simply remember to cut out the token below, save it, and when you have collected all four send them to me.*

*If you were unfortunate enough to miss printout one, I have a few filed at my installation base. Send a cheque or a postal order for 55 pence and I will ensure you receive one. Write to my programmers at ECC Publications, 30-31 Islington Green, London N1 8BJ.*

*The Controller*



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AQUARIUS  
HOME COMPUTER***

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with your  
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***ON SALE JULY***



# CAMP BEAUMONT

**D**O YOU WANT to learn computing in the quiet seclusion of the country, away from the excessive demands of parents, brothers and sisters? Then computer camps are for you.

Computer camps for children are Britain's latest import from California. One of the biggest and most experienced camp operators is Camp Beaumont, which runs 10 camps throughout the country during the Easter and summer holiday periods.

The full residential camps in Devon, Sussex and the Lake District are for children aged from nine to 17. Non-residential camps at Windsor, Mill Hill, Westerham, Brentwood,

Charterhouse and Tabley House (Cheshire) are for the four-to-15-year-olds. The first summer camps will open on July 16.

More than 5,000 children are expected to take computing courses this summer and the facilities to accommodate them are impressive. At each centre Camp Beaumont will have up to 50 new microcomputers — Vic-20s and Commodore 64s — and more than £10,000 worth of peripheral equipment such as disc drives and printers.

The courses are entertaining and informative and instruction is planned so that children can learn at their own pace and in their own way.

During the week youngsters learn to write their own programs in Basic under the supervision of qualified computer science students and teachers. They are also free to program the the camp robot or play computer video games.

In the afternoons, everyone is free to join the other campers in some 30 sporting and creative activities, including swimming, sailing, pottery, windsurfing, dancing, horse riding and judo. For further information write to Camp Beaumont, 73 Upper Richmond Road, London SW15 2SZ. If you are feeling lucky, however, why not enter our exciting competition below?

## Six holidays to be won

**W**IN A COMPUTER camp holiday. *Load Runner*, in conjunction with Camp Beaumont, is offering a free one-week residential holiday at the beautiful Camp Beaumont Lake District centre to each of the six winners of our simple competition.

The centre is a fine manor house set in 37 acres of private estate overlooking the river Caldew near Carlisle. It offers ideal opportunities for outward-bound activities, as well as providing expert tuition in computing. The holidays will be available for the week August 27 — September 3.

### How to enter

To the right is a printout of a few of the activities and facilities available at the Lake District camp. There is also an activity which clearly is not available. Unfortunately, our printer has scrambled the letters and you must re-arrange them. One of them has already been completed for you.

When you have listed the unscrambled words, decide which activity or facility you think is most important in a successful computer camp holiday and enter the appropriate letter into the space provided. You must also decide which activity would not be available. Send your entries to: Computer Camp Competition, *Load Runner*, ECC Publications, 30-31 Islington Green, London N1 8BJ, to arrive not later than Friday, July 15 1983.

Winners will be decided on the basis of the first six correct entries opened.

The usual rules of the editor's decision being final and employees of ECC Publications and Camp Beaumont being ineligible apply.

A	SCAIB MGRONIMAPGR	BASIC PROGRAMMING
B	CIGONANE	
C	LELF GWANLIK	
D	IGSFRUN	
E	NYOP KGREKNIT	
F	MOTECRUSP RFO LAL	
G	LAHHYET DOFO	
H	TEGRINEROINE	

The activity/facility I think is most important is.....

The activity I would not expect to find is.....

Name.....

Address.....

Age.....



# FABULOUS! SINCLAIR ADD-ON OFFER FOR ZX81 OWNERS

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NB. Before ordering your Spectrum add-on please check which spectrum you have in your possession. At the back of the ZX Spectrum the metallic contact strips can be clearly viewed. In the series A the space separating the strips is the same width as the strips. In the series B the strips are twice as wide as the space between.

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# TIME 9

PAUL HAS BEEN UPDATING HIS HISTORY NOTES ON HIS AKRON 90 HOME COMPUTER, WHEN IT BEGAN PRODUCING SOME VERY PECULIAR PROGRAMS...

IT DOES WHAT?

IT KEEPS ON GIVING ME PROGRAMS I DON'T PUT IN.

AT LEAST, I THINK THEY'RE PROGRAMS.

IT SAYS 'TIME PLAN' THEN A SERIES OF NUMBERS.

LOOK, ALL WE'VE GOT THIS AFTERNOON IS GAMES. WHY DON'T WE SNEAK BACK TO YOUR PLACE AND YOU CAN SHOW ME?

CAN I COME?

YOU DON'T KNOW ANYTHING ABOUT COMPUTERS.

IF MY MOTHER CATCHES US I'LL BE IN TROUBLE.

DON'T WORRY ABOUT THAT, YOUR COMPUTER'S MORE IMPORTANT!

YEAH, BUT I CAN KEEP A LOOK-OUT FOR YOUR MUM!

STORY- FRANK HOPKINSON  
PHOTOS- HENRY ARDEN  
LETTERS- S. CRADDOCK





WILL SHE BE OUT?

I THINK SO.

SHE'S SUPPOSED TO BE WORKING IN THE AFTERNOONS.

BUT SOMETIMES THEY LET HER OFF EARLY FOR GOOD BEHAVIOR!



THE MINUTE YOU SEE HER, SHOUT!

OK, BUT IF YOU GET ANY GOOD VIDEO GAMES, THEN I WANT TO PLAY.

IT LOOKS GREAT. WHAT DISC ARE YOU GOING TO PUT IN?

I'LL START WITH THE HISTORY ONE... BUT I WANT TO TRY AND GET THE TIME PLAN UP FIRST.

ALL I HAVE TO DO IS TOUCH THE...



WHAT'S THAT?

SEE WHAT I MEAN? I DIDN'T EVEN TOUCH A THING AND I GOT THAT!



THAT MUST BE FROM YOUR HISTORY NOTES.

DON'T BE STUPID, WE'VE NEVER DONE LEY LINES... WHAT-EVER THEY ARE.

### LEY LINES

LEY LINES ARE A NETWORK OF ANCIENT FORCE LINES. THEY ARE INVISIBLE FORCE LINES WHICH GIVE ACCESS TO THE FOURTH DIMENSION.



HANG ON, IT'S SCROLLING ANOTHER PAGE.



## LEY LINES

THIS HOUSE IS AT THE CENTRE OF THREE LEY LINES WHICH MEET. IT IS A CONFLUENCE WHERE THE FORCES OF TIME AND SPACE ARE FOCUSED INTO ONE POINT. OTHER CENTRES INCLUDE STONEHENGE AND WARMINSTER, SITES TRADITIONALLY ASSOCIATED WITH THE PARANORMAL, CENTRES OF THE FOURTH DIMENSION.











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- ★ Snake, Alligators and Baby Frog
- ★ 'Top 5' High-Score initials table
- ★ Demonstration Game routine

Your home-sick frog must leap across a busy main road, then onto logs and turtles in the river to reach safety of the river-bank frog homes. THIS MACHINE-CODE GAME MUST BE SEEN TO BE BELIEVED!!

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That is just a fraction of what you get from **Sinclair Programs**. Each month we have 40 programs for owners of ZX80s, ZX81s and Spectrums. But make sure you don't have to hunt TOO far for your bargains—**Sinclair Programs** always sells out quickly, so order yours TODAY from your newsagent, or fill in the form below and we will send it direct to you, every month.



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# Andy Royd-the DOMINATORS

*Rogue star!*

DISGUISED AS A ROBO-PLAYER, ANDY ROYD HAS SAVED DAVY'S DOMINATORS FROM RELEGATION WITH THE LAST MATCH OF THE 1993 SEASON...



IN THE LOCKER ROOM, AFTER THE GAME...

HAVE ALL THOSE SACRIFICES OF THE PAST BEEN LEADING UP TO THIS MOMENT?



"I REMEMBER THE DAY FATHER BROUGHT HOME HIS FIRM'S PROTOTYPE COMPUTA-KART!"



OKAY ANDY, THE BUILT-IN COMPUTER SEES THE ROAD AHEAD AND SHOWS YOU THE OPTIMUM SPEED AND LINE!

SO ALL I HAVE TO DO IS STEER! GREAT!



"I RACED THE COMPUTA-KART THROUGH THE GROUNDS... IT WAS MY FIRST TASTE OF SPEED!"

THIS IS MAGIC!



"AND ALMOST MY LAST!"

IT... IT'S NOT RESPONDING!!

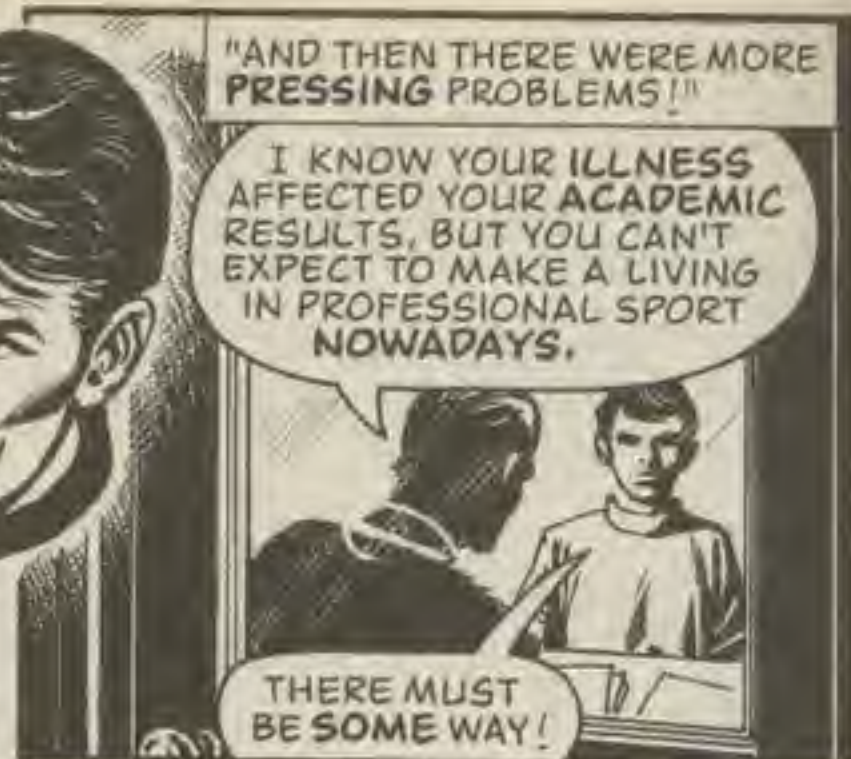


MASTER ANDY!



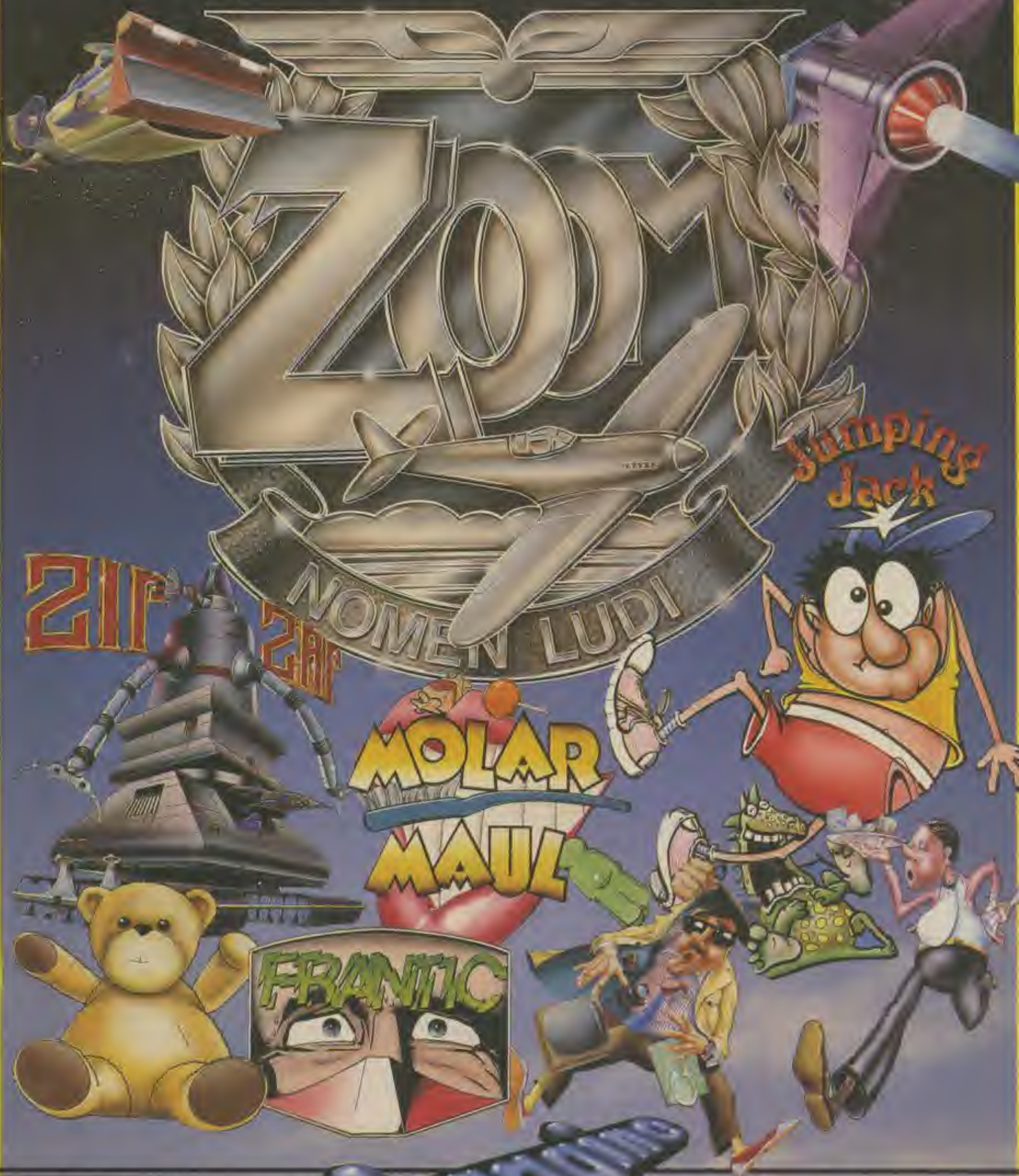








# The Legend continues...



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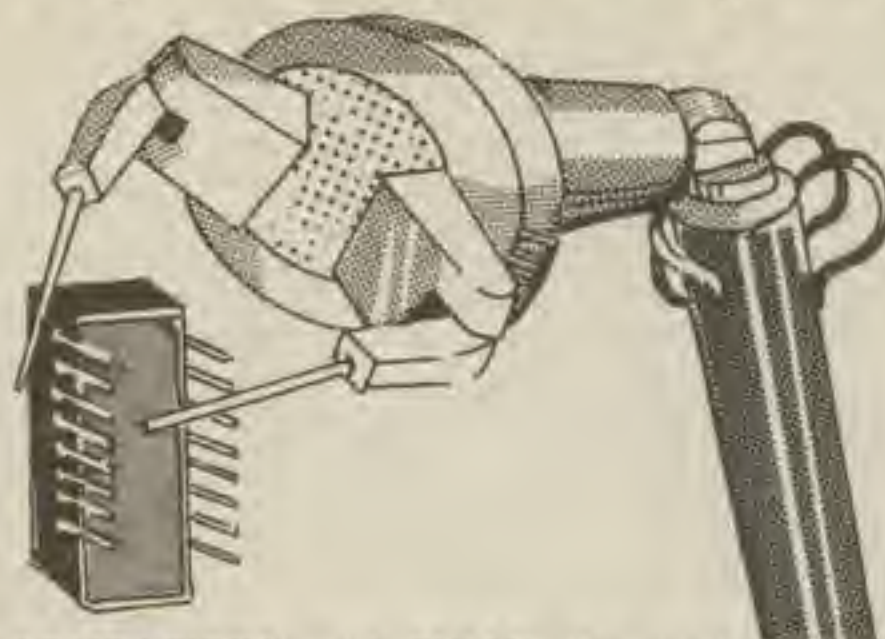
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## The Astounding World of Computafax

THE FIRST electronic digital computer was called ENIAC — Electronic Numerical Integrator And Calculator — and was designed by the University of Pennsylvania in 1945. It took two years and half a million dollars to build and its 10,000 valves occupied the space of a house. A valve would fail every eight minutes and it consumed sufficient power to drive a locomotive. Despite that expense, ENIAC was a breakthrough in computer development, enabling nuclear physics calculations to be completed in hours instead of years.



BY COMPARISON with ENIAC, the modern-day micro can be built quickly and cheaply, incorporating a silicon chip which costs less than five dollars, consumes very little electricity, and has the equivalent of 14,000 transistors in a square centimetre. The capacity of a microcomputer is greater than that of ENIAC; it performs calculations 20 times faster and, of course, very rarely breaks down.



WHEN TAITO INC first released the arcade game Space Invaders on an unsuspecting Japanese public in 1978, it caused such immediate addiction that no-one could use a telephone call box or buy a subway ticket due to the sudden shortage of coins.

## The Computer Story

A HISTORY OF COMPUTERS  
PART TWO

ALTHOUGH THE ABACUS WAS BEING USED OVER 5,000 YEARS AGO, THE NEXT IMPORTANT STAGE IN CALCULATING AIDS DIDN'T OCCUR UNTIL ABOUT 350 YEARS AGO.

IN 17TH CENTURY EUROPE SCIENCE STARTED TO GROW RAPIDLY — HELPING MANKIND TO UNDERSTAND HIS UNIVERSE AND SOLVE HIS DAY-TO-DAY PROBLEMS.

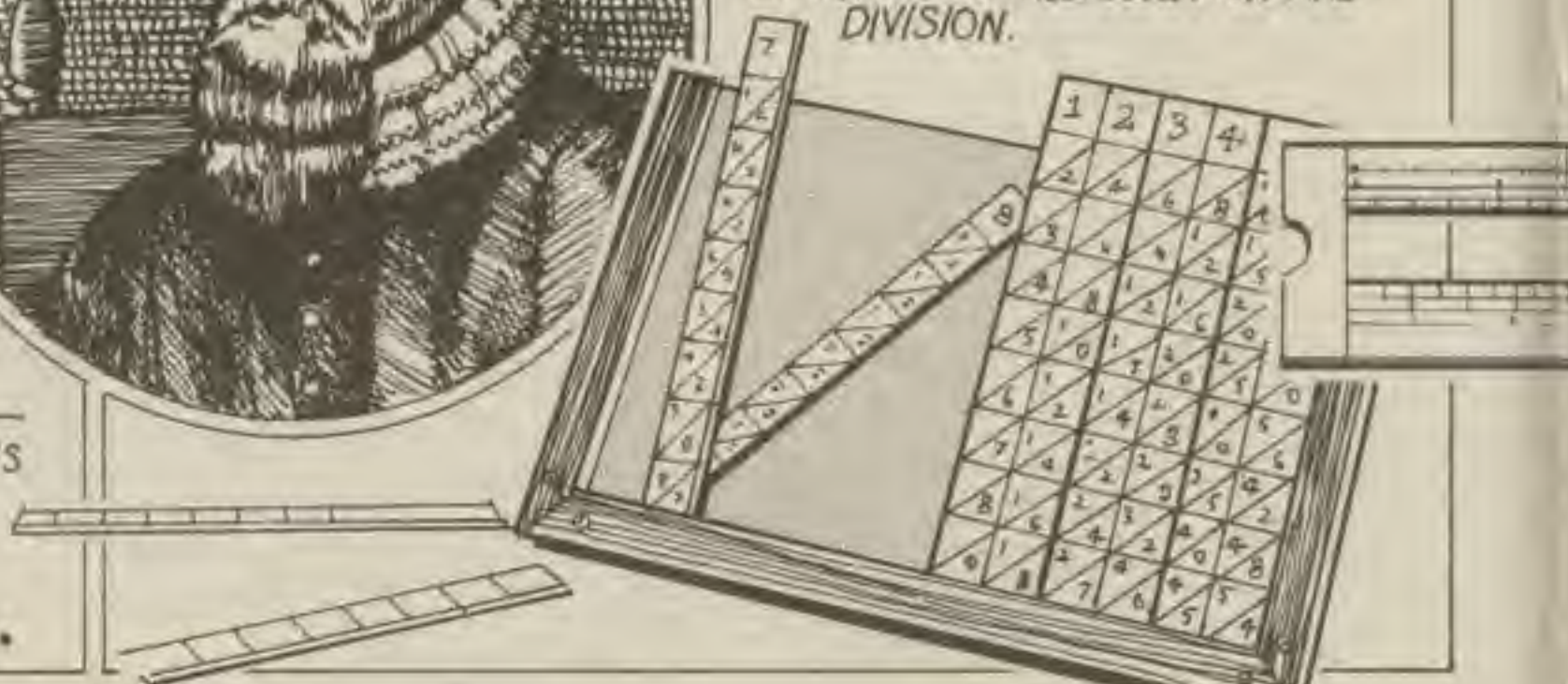
### CALCULATING AIDS...



IN 1614 JOHN NAPIER (LEFT), ANNOUNCED HIS INVENTION OF LOGARITHMS.

IN THIS SYSTEM, MULTIPLICATION AND DIVISION CAN BE DONE BY ADDING AND SUBTRACTING RELATED NUMBERS.

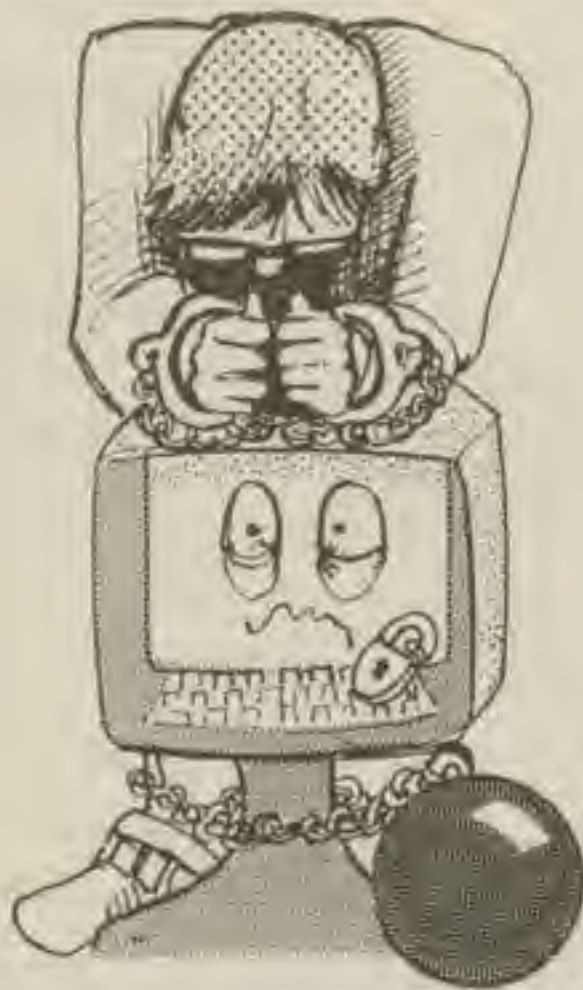
HE ALSO INVENTED A SYSTEM OF STICKS (CALLED "NAPIER'S BONES" BECAUSE THEY WERE MADE OF IVORY) AS AN AID TO MULTIPLICATION AND DIVISION.





THEFT BY COMPUTER is believed to account for £2 million in lost revenue every day. One of the most famous of computer crimes was the theft in January, 1971 of trade secrets worth \$25,000 in Sacramento, California. The criminal, a clever and ambitious programmer, telephoned a rival company's Univac 1108 computer and requested a copy of the company's secret software program, which the computer dutifully delivered.

The police succeeded in tracing the call and the programmer was arrested. The case was also the first in which a search warrant was issued to search a computer's memory banks for evidence.



● **Buzzwords** are the jargon of the computer world and can be very confusing. Below, *Load Runner* continues its glossary of computing terms. Get buzzing.

● **Artificial intelligence.** Programming the computer to act as if it is thinking. Making a computer perform tasks which normally need some kind of human intelligence.

● **ASCII.** American Standard Code for Information Interchange. A code which is used for all microcomputers to talk to each other and to understand each other.

● **Assembler.** A program which allows a computer programmer to use meaningful instructions instead of numbers when programming in machine code.

● **Audio cassette.** An ordinary tape recorder cassette which picks up sound.

● **Audio response unit.** This device will speak to you if you program it in the correct way. It performs like the speech boxes which are used by computers in science fiction films.

● **Audit trail.** The computer produces a report on what it has been doing and who has used it within a certain time span.

● **Auto start.** Sometimes used in computer manufacturers' descrip-

tions of a machine. It means that the machine will be ready to use when switched on and does not need a special program to be fed into it to work.

● **Auxiliary storage.** Storage devices, such as tape and disc which are not part of the standard computer system.

● **Backing storage.** Has the same meaning as auxiliary storage.

● **Back-up.** Any device which will save the information on a computer if the power fails or if information is lost in any other manner.

● **Bar code.** The block of black lines which you find on some products, such as food or books. The lines represent information which can be decoded by a computer. On food, the lines usually represent such items as price, code number and date of sale by the manufacturer.

● **Basic.** Beginner's All-purpose Symbolic Instruction Code. The language which most microcomputers use. It allows the user to program in a language almost like English in structure. The language is learned by most beginners when they start computing and is taught in schools for computer O level studies.

LOGARITHMIC TABLES WERE SLOW TO USE. SO IN 1620 ANOTHER ENGLISHMAN, EDMUND GUNTER, DEvised A RULE MARKED OFF IN NUMBERS FROM ONE END PROPORTIONAL TO THEIR LOGARITHM. CALCULATION WAS DONE BY MARKING OFF LENGTHS WITH DIVIDERS. A YEAR LATER THE REVEREND WILLIAM OUGHTRED REALISED THE DIVIDERS COULD BE REPLACED BY SLIDING A PAIR OF RULES ALONGSIDE EACH OTHER.

MANY PATTERNS OF SLIDE-RULE EMERGED, BUT THE MOST POPULAR VERSION WAS BASED ON THE MANNHEIM SCALE, INVENTED IN FRANCE IN 1850. MADE OF WOOD AND LATER PLASTIC (ABOVE), IT CONSISTED OF A MOVABLE SLIDE AND CURSOR IN A FIXED STOCK. IT BECAME AN ESSENTIAL TOOL FOR ENGINEERS AND SCIENTISTS.



THE SLIDE-RULE SUDDENLY DISAPPEARED IN THE 1970s, WITH THE ARRIVAL OF THE ELECTRONIC POCKET CALCULATOR - QUICKER, MORE ACCURATE - AND CHEAPER!

Written and drawn by Gus Smithers









Blake's Seven  
Star computer  
**DEAC**  
with Avon



*Shut down all systems! It's . . .*

# COUNT DOWN TO CHAOS

*by Philip Steele*



*The fate of mankind is decided in space or so people thought long ago. Comets brought doom and destruction in their wake. The murder of Julius Caesar, the Battle of Hastings. Today, of course, scientists don't believe in such things but when one day a comet is reported as passing close to our planet, Joe and Ellie notice some very strange things happening. The computer at their school goes haywire for a start. Electronic failure closes the car factory where their dad works. As systems fail all over the city, panic sets in . . .*

**H**EATHROW AIRPORT, 1930 hrs. A clear night and an easy landing ahead. Beneath the huge silhouette of the jumbo jet lay the clustered lights of London. Flight engineer Tom Maclure ran his experienced eye over the bewildering array of dials in front of him. No problems tonight. Captain Leroy March gave the thumbs-up to first officer Ken Jones. The whine of the engines became a deafening roar.

Flight crews are trained to expect emergencies. They can keep level-headed when you or I would be running scared—but suddenly even Captain March lost his cool.

"Good grief, that came from nowhere," exclaimed March, as a small executive jet flew straight at them. They could see the white face of its pilot as it screamed out of their flight path in a steep bank.

"Oh, boy!" Their headphones were suddenly filled with confused jabbering and a crackling noise.

"Captain, I think that was a distress call from the control tower."

"Everything has gone dead."

"Problems with the readings here, boys", chipped in Tom Maclure.

"Well, we're going down", snapped March decisively. "Cabin crew stand by . . ."

The gigantic metal frame of the jumbo eased itself down out of the night sky to an airport with a control

---

"The computers have caught some disease," said Joe. "You know, like the great plague."

---

tower which was suddenly silent, its computer systems shutting-down one after the other. The lives of 520 passengers hung in the balance . . .

**G**ood evening, and welcome to *Headline*, a programme of news and current events . . ."

Joe and Ellie were eating their supper in front of the TV. Their mother was at the table prising the back from a hi-fi amplifier with a screwdriver.

"You'll never fix it, mum", said Ellie.

"Would you like to bet?" came the dogged reply.

"In tonight's programme we report on microchip may-





*"We're going down", snapped March decisively.*

hem, but first, the news. Chaos reigned this evening at London's Heathrow Airport as all its computer systems failed. A jumbo jet recorded a near miss on approaching the airport and clipped the wing of a stationary Concorde. Due to the skill of the jumbo pilot, Captain Leroy March, there were no injuries among the passengers. With flight bookings in confusion, it was a tourist nightmare. All arrivals and departures have now been cancelled and the airport is now closed.

"Trouble hit British Rail today, too. Its Southern Region service also suffered computer failure during rush hour this afternoon, resulting in misery for thousands of commuters. Derailments and collisions were avoided but rail traffic was reduced to a crawl and the trouble is now said to be spreading to other major cities

"Joe, I knew it!" cried Ellie. "We were right about everything breaking down and all the micros going nutty."

"Well, if all the computers are falling to bits, it's good riddance as far as I'm concerned", interrupted mum. "I mean, look at this stupid box". The amplifier lay in pieces across the table.

"If you ask me these blooming microchips have a lot to answer for".

"Don't be daft, mum", said Ellie. "Just think where we would be without computers: hospitals, offices, airports—we really need them."

"Ssh! Listen to what they're saying on the box", said Joe.

"As Britain's computers run amok, we ask why, and look at the likely outcome. Could it be sabotage? Is some foreign power trying to take us over? It seems unlikely, for within the last hour reports have been coming in from all over the world of systems failures. In the United States the banks have closed. A Soviet rocket lost control shortly after take-off and came down in the Gobi desert

"It sounds like the computers have caught some disease", said Joe. "You know, like the great plague. We read about it at school. Bring out your dead!"

"I don't understand how metal machines can catch a cold or something", said mum. "They're not human, for heaven's sake. Oh, where's your father? He doesn't run on microchips; he should be home by now. I'll bet he's sitting in the pub with his mates from work".

"Mum, just think what the breakdown will mean at dad's factory", said Ellie. "You know how they have those new robots on the assembly line".

"Oh dear, I hope they don't lay him off. Do you think he's all right? Perhaps I should call the factory gate to see if he's checked out. Turn down that racket".

Joe turned down the TV as mum dialled. "Hello? Who? Battersea Dogs' Home? I do beg your pardon." She dialled again. "Hello? Hello? New York? No! What? Oh, it's gone dead. The telephones as well. Oh, this is really getting beyond a joke. Why doesn't somebody do something?"

Joe smiled. "Don't worry, mum. They'll sort it out and I expect dad will be back soon."

Then the television screen went blank. That too? No, it flickered back to life and cut to the Prime Minister. For once he wasn't pretending to smile. He wasn't even puffing at a pipe but looked pale and drawn.

"My fellow countrymen, I have to ask you to prepare for an event so dreadful that it remains without equal in history, but I beg you to remain calm. It seems that our country is under attack from nuclear missiles. In about four minutes' time the first . . ."

Suddenly the picture disappeared and the sound faded away. There was a stunned silence. Joe and Ellie stared at the tiny spot of light which disappeared slowly from the centre of the screen. Their mum stood up and sat down again.

"What? Oh, what should we do? Oh, no, no". She held her head in her hands. "Where's your father? Joe and Ellie went towards her; they were shaking. They huddled

**"I beg you to remain calm. It seems that our country is under attack from nuclear missiles"**

in a little group at the table. The silence which filled the room seemed to spread and fill the whole city. Every minute seemed to last a lifetime.

There was a new light in the sky that night—a ghostly glow. It was no missile, although some who had seen the television broadcast assumed that it was the first—and last—shot of the third world war. The light was the comet, passing closer to Earth than any before. If it was the harbinger of disaster, it was certainly breathing down our very necks. It would be a close-run thing.

**CONTINUED IN NEXT ISSUE.**



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London N1 8BJ



# THE ADVENTURES OF ROM AND RAM

ROM AND RAM SENT FROM ZILLYKON TO SPY ON EARTH LINGS' WAR CAPACITY, ARE INSIDE THEIR SPACECRAFT, CUNNINGLY DISGUISED AS A COMPUTER AT DUNZAPPIN, SOMEWHERE IN ENGLAND...



CHILDREN, TIME FOR SCHOOL!

HANG ON!  
JUST ONE MORE!



THESE HUMANOIDS ARE DANGEROUS!  
COME ON, TIME TO EXPLORE!



ALL CLEAR  
LET'S RUN!



RAM QUICKLY ESTABLISHES CONTACT WITH THE NATIVES...

HI, DOLL!  
WHAT'S A NICE GIRL  
LIKE YOU DOING IN  
A....

COME OFF IT, RAM,  
YOU DON'T EXPECT  
THAT OLD LINE  
TO WORK, DO YOU?



WELL, HELLO! MY NAME'S  
PERKY PAT! I LIKE YOU!  
YOU'RE REALLY CUTE!

AAARCH!  
HOW HORRIBLE!



AND CONTACT IS SWIFTLY BROKEN!  
BY PIXEL!  
WHAT TOTALLY  
TWISTED INTELLECT  
COULD DEVISE SUCH  
A MONSTER?

WELL, HELLO!  
MY NAME'S  
PERKY...



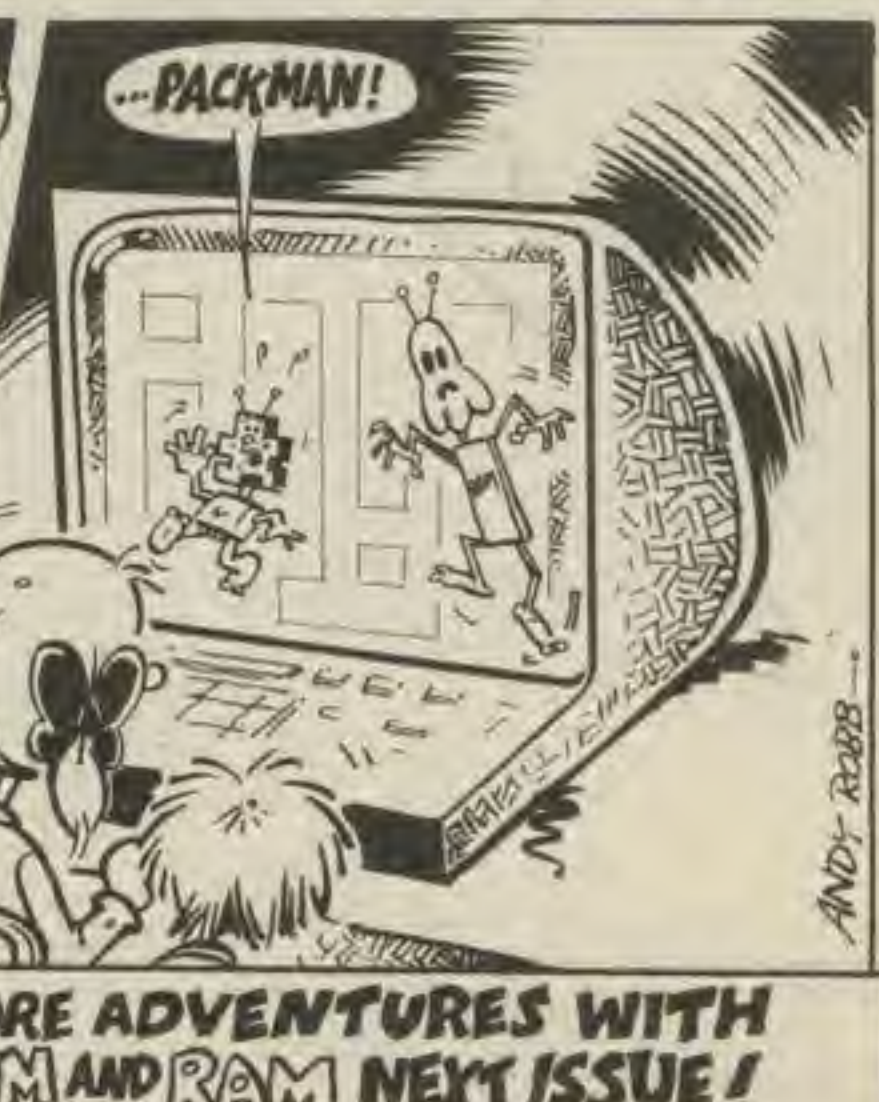
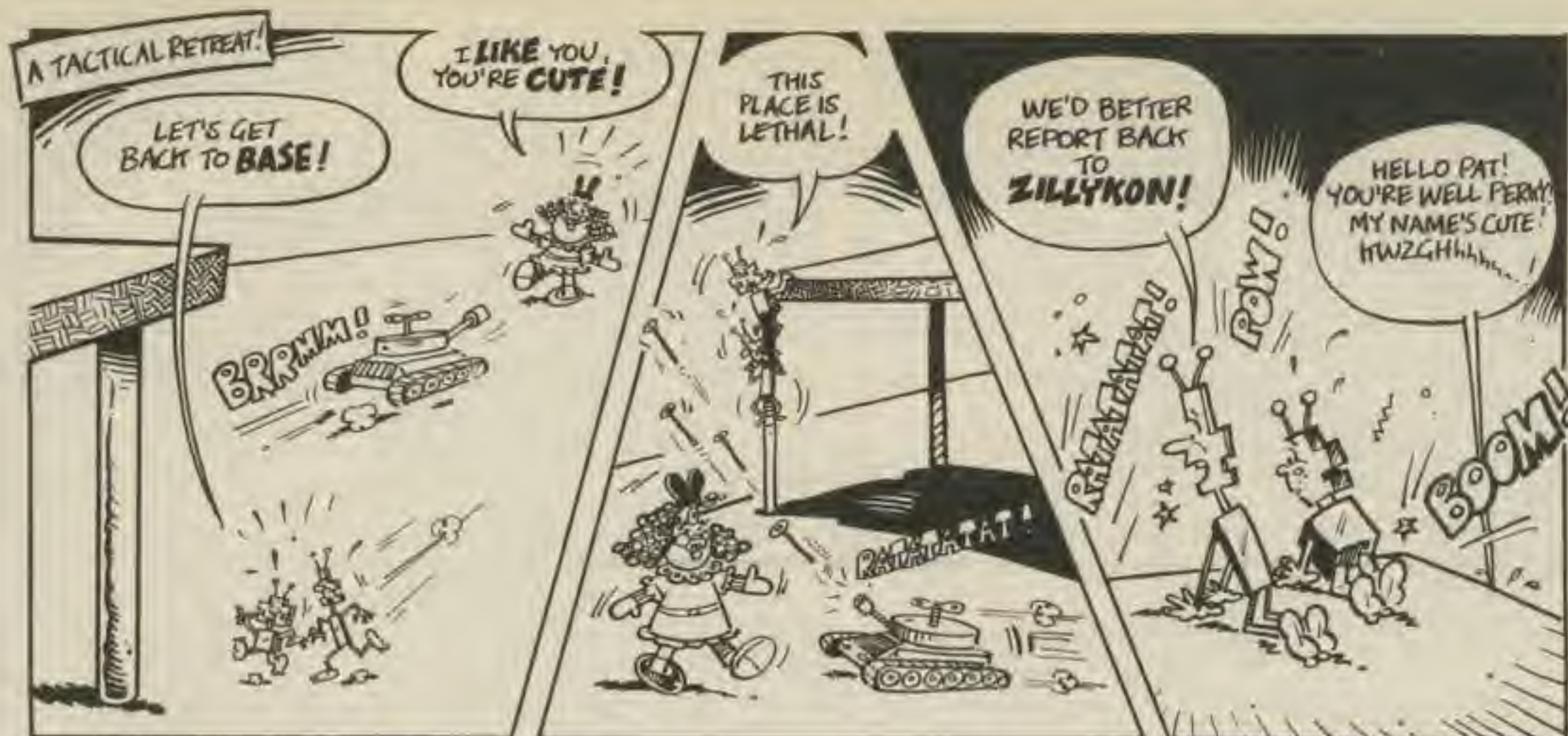
QUICK, RAM,  
LET'S MAKE FOR  
COVER!



WE'RE SURROUNDED!







**MORE ADVENTURES WITH  
ROM AND RAM NEXT ISSUE!**





## BRAINY'S BRAINBOX

### Which computer magazine?

CAN YOU SUGGEST a good home computer magazine for me? There seem to be so many and I can't understand most of them.

*Beano-reader, Liverpool*

FOR A START there's this one but you must know that if you're reading it. If it doesn't give you what you want, why not write and tell me? Describe for what you want a magazine, then look at ones which might do. Some are good for some machines; some are best for news and so on. *Sinclair User* is for Sinclair users and is good value. My father says that *Your Computer* is very good for cheap machines but my friends say that *Personal Computer News* is much better. Look in your bookshop but don't let them catch you reading all the magazines.

### Starting out with Sinclair

I AM THINKING of getting a computer. Can you suggest a suitable one which is cheap for a beginner?

*Helen Field, Birmingham*

THE ZX-81 COMPUTER is probably the cheapest but the Sinclair Spectrum has colour, sound and hi-

res graphics. Both are easy to understand and there are many books and programs for them; the Spectrum 16K costs £99.95 and the ZX-81 only £39.95.

### Making millions with your micro

I HAVE a computer and I read in the paper that computers can make you rich. How do I start?

*Emily Cotsell, Sheffield*

SELL YOUR computer for twice its price. One million people have computers but not many of them have become rich.

### Examination revision tapes

I AM TAKING my O level examinations next year and was wondering if you could suggest any good revision tapes which I could buy to help my work. I need help with physics, chemistry and maths. Please give me some advice or I shall fail.

*Sarah Browning, Manchester*

THERE ARE many revision tapes on sale, most of them written by teachers who appreciate the learn-

HI I'M BRAINY and I really rate computers. I'm in *Load Runner* every issue so write to me at 30-31 Islington Green, London N1 and I'll do my best to answer any questions you have. Believe me, no problem is too small... I can tell you why you should convince your parents to invest in a computer or I can end your *Loading* problems.

Remember, Brainy's the name and, by the way, I will pay £1 to anyone who's name is mentioned. Write away!

ers' problems and make revision an enjoyable pastime. All those I have tried I have found helpful, so I think the best thing would be to look round your nearest computer software shop. You could also write to MUSE, Westhill College, Birmingham 29. MUSE is an educational computing club with many programs for members. Your parents can join.

### Used ZX-81 — cheap at the price?

SOMEONE at school wants to sell his ZX-81 for £50. Is that a bad price or a good one?

*Mark Vaughan, King's Lynn*

IT IS NOT a good price because you can now buy one new for £39.95 and I would recommend £20-£30, depending on the condition. I suppose £50 isn't bad if it has 16K memory. Also if he has any software it will encourage prospective buyers. Make sure it works properly.

### Advice on how to ESCAPE

PLEASE could you tell me how to interrupt a program and change it?

*Ruth Guest, King's Norton*

PRESSING BREAK will usually solve the problem. While RUNNING a program on the BBC and most other computers, you can interrupt it by pressing ESCAPE if you want. Then the computer will be easy to change its program. You could also pull out the plug; when you plug it back the computer will have lost its memory. My dog usually trips over the wires and pulls them out while we are writing a program, so keep PET's away—a computer joke.



# Apple II



## Apple Computer (U.K.) Ltd

Finway Road,  
Hemel Hempstead,  
Herts,  
HP2 7PS

## Specifications

### Price

£812

### Number sold

53,000 +

### How sold

Assembled

### Processor

6502

### Standard RAM

48K

### Expansion RAM

—

### Basic + operating system

8K or 12K in ROM

### Display

Colour 24 lines × 40 characters

### Tape recorder

—

### Backing storage

Disc drives

## Software

Digital Research, Comshare Ltd, 32-34 Great Peter Street, London SW1P 2DB.

## Books

The Personal Computer Guide, by Tim Hartnell — Virgin Books Ltd, 61-63 Portobello Road, London W11 3DD.

## Comments

The Apple II was superseded by the Apple IIE. Both machines are well-regarded in the business market and a good deal of software, such as word processing packages and accounting programs, has been written to consolidate its lead in this market.

The computer is not only used by businesses. A wide variety of games programs are available on disc for the system. A useful, short, routine is printed below, courtesy of Hilderbay Ltd.

```

10 HOME : PRINT "A simple, but useful adding ma
   chine."
20 PRINT : PRINT "Illustrates the use of scroll
   ing screen 'windows'."
30 PRINT : PRINT "Enter numbers to add, each fo
   llowed by RETURN. Negative numbers are allo
   wed."
40 PRINT "Press / RETURN after entering the las
   t number.": PRINT : PRINT
50 SL = 0: REM 0: screen. 1: printer.
60 BL$ = "          ":SUM = 0: PRINT : PR# SL: PRINT
   "Addends    Sum      Details": PRINT : PR# 0

70 VP = PEEK (37): GOSUB 160: VTAB 23: CALL -
   958: INPUT "Next addend? (/ after last) ":Q$
   : REM PEEK (37) is cursor line. CALL -958 c
   learns to end of screen.
80 IF LEFT$ (Q$,1) = "/" THEN 130
90 VTAB 23: CALL - 958: INPUT "Details? ":X$
100 X = VAL (Q$):SUM = SUM + X
110 GOSUB 150: VTAB VP + 1: PR# SL: PRINT LEFT$
   ( STR$ (X) + BL$,10): LEFT$ ( STR$ (SUM) + B
   L$,10):X$: PR# 0
120 GOTO 70
130 VTAB VP + 1: PR# SL: PRINT "-----
   -----": GOSUB 170: CALL - 958: PR#
   0: CALL 1002: END
140 REM 150, 160, 170: top, bottom, normal scre
   en window.
150 POKE 34,0: POKE 35,21: RETURN
160 POKE 34,22: POKE 35,24: RETURN
170 POKE 34,0: POKE 35,24: RETURN

```



# TRUMBULL'S WORLD

IN THE OVERCROWDED WORLD OF THE FUTURE, PROGRAMMER TRUMBULL DISCOVERS THE EQUATION THAT WOULD ENABLE MAN TO TRAVEL TO OTHER GALAXIES. FEARING THAT THE GOVERNMENT, LED BY THE SINISTER SIMIAN WILL MISUSE THE INFORMATION, HE HIDES IT INSIDE HIS COMPUTER-CREATED FANTASY WORLD...

SIMIAN SEARCHES FOR THE EQUATION THAT WILL ENABLE MAN TO TRAVEL TO ANOTHER GALAXY.

THE CHILDREN OF PROGRAMMER TRUMBULL, MARC AND JAN. THEY MUST KNOW HOW TO GET INTO THE ADVENTURE WORLD TO RETRIEVE THE EQUATION.

WE'VE INTERROGATED THEM GENTLY, BUT THEY TELL US NOTHING ABOUT THE LINK BETWEEN THE EQUATION AND THE CLASP.

I WILL TAKE THEM IN HAND. THEY WILL RESPOND TO ME.

AS YOU WISH.

SIMIAN STRUTS UP AND DOWN...

I MUST GET INTO THAT GAME! IF I CAN FIND THE EQUATION, I CAN CONTROL THEM ALL.

GUARD, TAKE ME TO THE CHILDREN!

YOUR FATHER LOVED YOU, CONFIDED IN YOU. HE TOLD YOU HOW TO GET INTO THE GAME, DIDN'T HE?

NO. WE DON'T KNOW ANYTHING.

TRUST ME. I MEAN YOU NO HARM.

LIAR! YOU'D KILL US IF YOU DARED!

AT ONCE SIMIAN.

SIMIAN DRAGS THE CHILDREN TO THEIR FEET...

THE MORE YOU RESIST, THE WORSE IT IS FOR HIM!

SCRIPT:  
ROB BEATTIE

ARTWORK:  
MALCOLM STOKES

LETTERS:  
STEVE POTTER

LET ME GO!

...AND SHOVES THEM...



...OUT INTO A NIGHTMARE!

HAVE NO FEAR, WE SHALL FIND IT!

THE EQUATION'S SOMEWHERE INSIDE HIM.

IT'S ONLY A MATTER OF TIME.

FATHER!!

THE CHILDREN ARE TAKEN BACK TO THE CELLS... WHERE IT IS ALWAYS NIGHT.

MARK? WHAT'S WRONG?

I'M SORRY... I JUST COULDN'T SLEEP.

MARC AND JAN REMEMBER THEIR FATHER...

DID YOU SEE HIM? THE LOOK ON HIS FACE? IT WAS HORRIBLE.

THAT'S NOT FATHER. IT'S WHAT THEY'VE TURNED HIM INTO.

HOW HE USED TO BE...

REMEMBER HIS FUNNY WAYS. THAT SILLY ADVENTURE GAME HE WAS ALWAYS PLAYING.

YES. IT WAS ON THE SYSTEM WHEN THE GUARDS CAME FOR HIM...

...THE REALIZATION STRIKES!

WHAT IF HE HAD THE EQUATION IN THE **ADVENTURE WORLD**... IT WOULD BE THE PERFECT PLACE!

AND NO-ONE CAN GET INTO THE GAME BUT US. WHICH IS WHY WE'RE SO IMPORTANT!

BETWEEN THEM, THEY UNRAVEL THE MYSTERY.

THAT'S WHAT THEY MEAN WHEN THEY GO ON ABOUT THE 'CLASP'.

FATHER DIGITISED THE JUMP CO-ORDINATES AND HID THEM IN HIS GAMES WORLD. IF WE COULD ONLY GET TO THE COMPUTER!

MARC STOPS AS...

THEY PLAN TO OVERPOWER THE GUARD...

HE'LL NEVER EXPECT IT.

THE CHILDREN TENSE FOR THEIR ESCAPE...

COME ON YOU IN THERE!

IF WE ACT DOBILE, WE MIGHT GET AWAY WITH IT.

WAKE UP IN THERE!

THAT'S FOR MY FATHER!

NOW!

THEN THEY MAKE THEIR ESCAPE...







# TRUMBULL'S WORLD

THE CHILDREN SURVEY THE STRANGE LAND IN WONDER...

THERE'S SO MUCH SPACE.

THE SIZE OF THE TREES... WHAT'S THIS?

THAT'S A KNIFE... AND THIS IS SOME SORT OF CONTAINER.

D'YOU THINK THAT'S WHAT FATHER MEANT...

TRUMBULL'S FACE ON THE SCREEN...

THEY REMEMBER!

HE KNEW WE'D GET HERE SOMEHOW!

WATCH FOR SIGNS HE SAID. I WONDER WHAT HE MEANT?

JAN IS ENTRANCED BY THE BEAUTY AS MARC MAKES A DISCOVERY.

JAN! LOOK A NOTE!

WHAT'S IT SAY?

THE FIRST CLUE!!

WHAT DOES IT MEAN?

I CAN HEAR WATER... FROM THE WEST.

THE CHILDREN FOLLOW THEIR ONLY CLUE...

WHAT DOES IT MEAN... SOMETHING ROUND UNDER-GROUND?

AND WHY ALL THE STUFF ABOUT SONS AND DAUGHTERS? IS THAT US?

UNAWARE THAT THEY ARE BEING FOLLOWED!

THEY ARE HORRIFIED AS THE SHAPES EMERGE FROM THE WOODS...

WELL, WE CAN'T CROSS THAT ALONE! THE RIDDLE MUST HAVE THE ANSWER.

WE'VE GOT TO CROSS THAT RIVER BEFORE THOSE THINGS REACH US!

BUT WE CAN'T UNLESS WE SOLVE THE RIDDLE!

THEY REACH THE RIVER AS THE DARK SHAPES GATHER... SNIFFING.

YES, BUT I FEEL CREEPY, AS THOUGH WE'RE BEING WATCHED.

SNIFF! SNIFF!

THEY BEGIN TO TURN...

WHAT IS IN THE WOODS? WHAT IS THE MEANING OF THE RIDDLE? CAN MARC AND JAN SURVIVE? NEXT ISSUE: FRIENDS AND ENEMIES.



# Airport '83

**Air Traffic Control at Heathrow handles sixty aircraft an hour . . .**



**J**UST IMAGINE you are sitting in the control tower at Heathrow Airport. It is 2am and the bright lights of the runways are shining at you. The computer map on the IBM 9020D in front of you tells you that in the next hour 30 aircraft are approaching for landing and 31 waiting for take-off.

Without a computer that would be a moment of panic. The IBM at Heathrow stores details of every departure flight, relaying the information at intervals to all air traffic controllers through whose airspace an aircraft will pass and, at various sites in the British Isles, radar stations identify and collect information of each incoming aircraft flight level, speed and the like—sending it automatically to the IBM at base, giving the precise time of arrival of each aircraft.

Between landings you have to organise the take-offs of scheduled departures, ensuring there is always sufficient airspace and landing room, and that aircraft pass each other at a safe distance. If there is no free runway, you ask incoming aircraft to wait, sometimes forming a queue, known as "stacking", at varying heights.

Because of modern technology, flying is now safer than driving a car. If you think you could handle such a responsible and exciting job, why not contact the Civil Aviation Authority at CAA House, 45-59 Kingsway, London, WC2B 6TE. Tel: 01-379 7311.

*Top left: the IBM 9020D in the London Air Traffic Control Centre at West Drayton. © CAA.*





# THE INVASION OF THE ARCADIAN

THE CITY SEEMS PLAGUED BY GANGS OF ROVING 'DAZERS' - KIDS WHO HAVE BEEN CHANGED INTO ZOMBIE-LIKE AUTOMATONS AFTER PLAYING AN ARCADE GAME CALLED *MIND WARP*. NO-ONE KNOWS WHERE THE GAME COMES FROM, BUT THE RESULTS ARE STARTLING!

THEN ONE DAY, A STRANGE FIGURE MATERIALISES IN AN ALLEY IN THE CITY...

...AT THE OTHER END OF THE ALLEY, A SMALL FIGURE LIES COWERING IN TERROR FROM...











THE BLACK STRANGER REMOVES THE DAZERS' HEADPHONES...



HOW INDEED? FIND OUT MORE NEXT ISSUE!



# Meanwhile back at the ranch...

*Even the cows are computerised at Bridget's Experimental Farm*



**T**HE DAYS OF Daisy the cow are numbered. Soon she'll be just another set of figures in a computer memory. Down on Bridget's farm, just outside Winchester, the Ministry of Agriculture, Fisheries and Food is running the country's first fully-automated dairy parlour. The feeding, milking and record-keeping are controlled almost completely by microcomputer and Chris Laycock, the chief dairyman, says that his job has been made considerably easier as a result.

Each of more than 400 cows on the farm wears a yellow plastic collar, to which is attached a blue locket containing a microprocessor which is programmed with the cow's individual number. When a cow enters the milking parlour the computer identifies her by recording that number and then measures her milk yield, notes her weight, and records that information.

In that way the computer can regulate the amount of food required by each animal and can monitor abnormal weight loss caused by calving or illness.

On Sundays, the computer prints-out a weekly report detailing all that information, providing Chris with an up-to-date report on every cow in his herd.

He is possibly the first dairyman to have such a complete and accurate assessment of herd performance. The labour-saving, and consequent money-saving, potential of the experimental system is enormous.

*Left: the computer terminal.*

*Below: the cows coming in for milking, wearing their individual microprocessors.*





# The latest for Sinclair, Vic-20 and TI99/4a owners — at unbeatable prices!

The newest games like Carwars . . . Blasto . . . Pitman 7 and many more take their place this month in our lists! Remember we search for brilliant new program sources throughout the U.K. and North America to find an exciting collection of new games — and business programs — many of which cannot be bought by mail order from any other source!

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**The Software Workshop, Yew Tree, Selborne,  
Hants GU34 3JP**







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TI-03 <b>Alligator Mix</b> Watch those teeth...	£27.95
TI-04 <b>Blasto</b> Explosive fun!	£21.95

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## ZX81 Software

1-01 <b>Stock Market</b> Buy and sell your way to millions! 16K RAM	£3.95
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Defend your own ship from oncoming attackers. 16K RAM

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2-29 <b>Jackpot</b> The harmless way to take on the one-armed bandit. 48K RAM	£5.95

To: The Software Workshop, Yew Tree, Selborne, Hants GU34 3JP

I wish to order the following programs. I understand that:

- \* I will receive a FREE blank cassette with every 2 programs ordered
- \* I can return products within seven days if not entirely satisfied and receive a replacement to the same value.

Ref No	Qty	Title	Price

Postage, packing and handling: add 45p for the first cassette, and 25p for each additional cassette. Non-UK orders add extra 50%

I enclose a cheque/postal order for \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

(Allow 28 days MAXIMUM FOR DELIVERY)

Total





# COMPUTATIONS

THE NATIONAL Insurance Co uses an Apple IIe computer to keep track of its business. The computer also controls a real-time clock at the company headquarters. It uses 0.5 of a unit of power every minute. How much power is used in one hour?

# Wordplotter

True or false?

HOW MUCH do you believe a computer could do? Decide which statements you think are correct.

- A computer is used to control a car engine.
- Computers are used to control British Rail train movements.
- A computer is used to control the traffic system in Britain.
- Computers control robotic devices which can see.

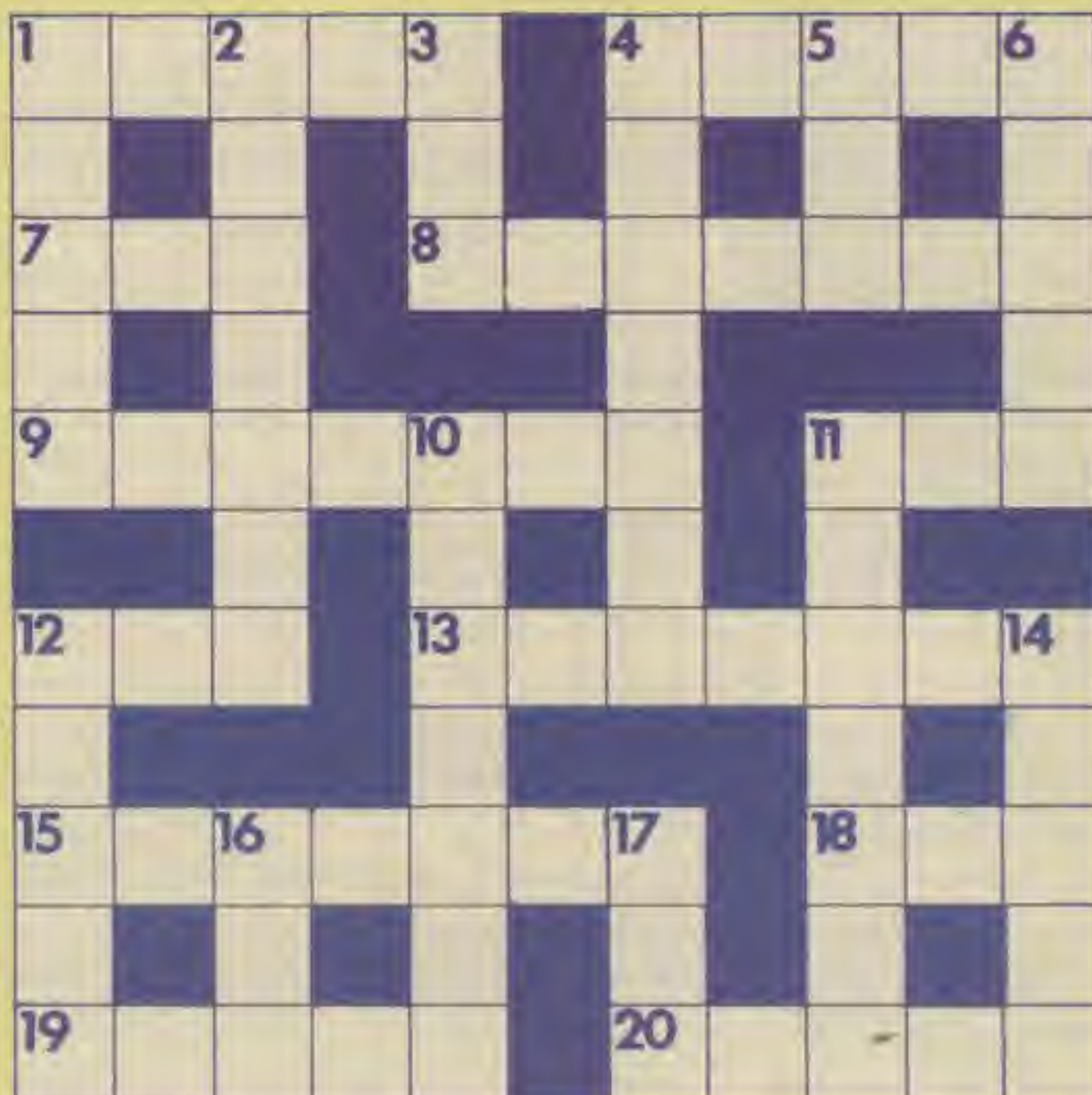
A COMPUTER is given the task of sorting a stack of 100 cards into three piles. The piles are numbered 1, 2 and 3. For every card put into piles 1 and 2, two must fall in pile 3. On which pile does the last card fall?

ANSWERS to puzzles in the last issue: The word square included the words INPUT, ENTER, RUN, TRACE RND, LET. The word which was repeated was INPUT.

The anagrams were ACCESS, INPUT, COMPUTER, LOAD. The odd one out was DRAWER.

It took 10 minutes, 12 seconds for our computer to deal with the 255 instructions used in the quiz.

## WORDPLOTTER SOLUTION



Across

1. The first field event may help you find bugs (5)
2. Doctor with a little demonstration of a Prestel interface (5)
3. Uncommitted logic array at the heart of a modern micro (3)
4. Micro data as do with fingers (7)
5. Electronic spaghetti which goes mad? (7)
6. Public transport for data transport (3)
7. A tiny number (3)
8. Personal assistants' period for a hobby like computing (7)
9. & 2 dr. Computing professional? Sounds like a chemist (7, 7)
10. Little drink for a little clerk (3)
11. Are there a hundred to a string? (5)
12. In a returned store about a young person (5)

## Down

1. Honesty comes in logical tables (5)
2. See 15 across
3. Last line in a broken-down program (8)
4. Keep them away from computer tapes! (7)
5. A lighted pixel (3)
6. Smile about a great distance (5)
10. I am a journalist. Your programs are really good (7)
11. How microcomputer extras ought to be constructed! (5-2)
12. Language for beginners, they said (5)
14. Go for an exam. at the end of a program input (5)
16. Evil function (3)
17. Arithmetical total (3)

**DATA TO FILE IN YOUR MEMORY BANKS!**  
**LOAD RUNNER PRINTOUT NO. 3**  
**ON SALE JULY 21. DON'T MISS IT!**

Providing processor power to The Controller in publishing Load Runner were Bill Scolding (editor), David Hogan (advertisement manager) and Simon Ardizzone (administration). Chris Winch, Harold Mayes MBE, John Sterlicchi, Terry Cartwright and Richard Hease linked into the system. The corporate might of ECC Publications of 30-31 Islington Green, London N1 8BJ was utilised continually. Printout by Cradley Print PLC, Warley, West Midlands. Distributed by Spotlight Magazine Distribution Limited, 01-607 6411. ISSN 0264-8369. © 1983 Load Runner.